

Infrastructure based Wireless Network

Spoken Tutorial Project

<https://spoken-tutorial.org>

National Mission on Education through ICT

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Learning Objectives

In this tutorial, we will learn to



Learning Objectives

- ▶ Analyze the flow using a flow monitor
- ▶ Visualize the network using NetAnim



System Requirements

To record this tutorial, I am using



System Requirements

To record this tutorial, I am using

▶ **Ubuntu Linux OS version 22.04**



Pre-requisites

To follow this tutorial,



Pre-requisites

To follow this tutorial,

- ▶ The learner must have basic knowledge of using ns-3 software
- ▶ For pre-requisite ns-3 tutorials, please visit this website <https://spoken-tutorial.org>



Code Files

- ▶ The files used in this tutorial are provided in the Code Files link



Code Files

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- ▶ Please download and extract the files

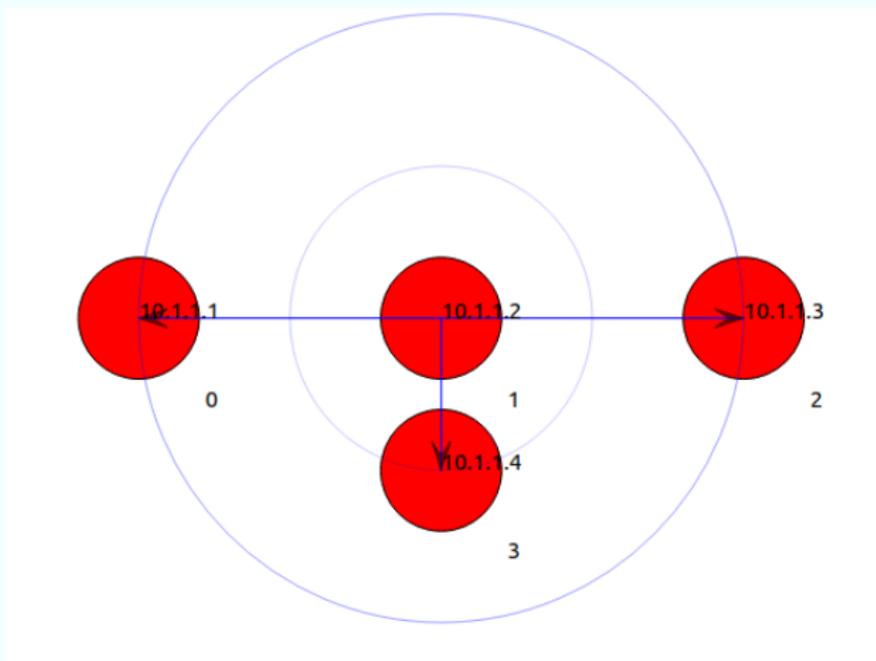


Code Files

- ▶ The files used in this tutorial are provided in the Code Files link
- ▶ Please download and extract the files
- ▶ Make a copy and then use them while practicing



Infrastructure based Wireless Network



Summary

- ▶ Analyzed the flow using a flow monitor
- ▶ Visualized the network using NetAnim



Assignment

As an assignment, please do the following

- ▶ Create a simulation for a wireless network with three nodes**
- ▶ Create one access point(AP) and two stations**



Assignment

- ▶ **The AP and stations should use an 802.11g physical layer**
- ▶ **Implement UDP traffic between the stations and the AP**



Assignment

- ▶ **Analyze the flow using flow monitor**
- ▶ **Visualize the network using NetAnim**

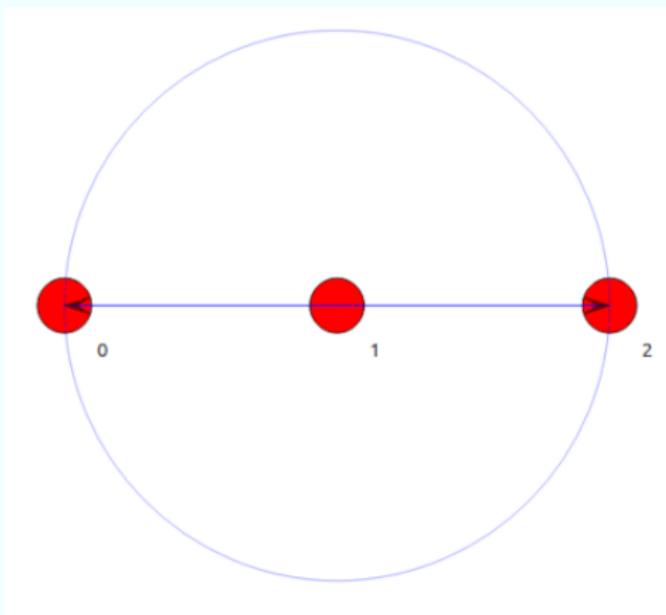


Assignment-Observation

```
arun@arun-dot-com:~/ns-allinone-3.38/ns-3.38$ ./ns3 run scratch/exp-9assignment.cc
[0/2] Re-checking glopped directories...
[2/2] Linking CXX executable ../build/scratch/ns3.38-exp-9assignment-default
Topology
  n1 (AP node)
  .
  .
n0      n2 (Station nodes)
-----
Testing 100 packets sent with receiver rss -70
Testing 200 packets sent with receiver rss -70
Flow ID:- 1 Source addr: 10.1.1.1 Dest Addr: 10.1.1.2
Type: UDP Flow
Tx Packets = 100
Rx Packets = 31
Lost packets = 69
Times forwarded = 0
Delay = +1.90143e+10ns
Throughput: 168.66 Kbps
-----
Flow ID:- 2 Source addr: 10.1.1.3 Dest Addr: 10.1.1.2
Type: UDP Flow
Tx Packets = 200
Rx Packets = 40
Lost packets = 160
Times forwarded = 0
Delay = +3.10568e+10ns
Throughput: 275.795 Kbps
-----
arun@arun-dot-com:~/ns-allinone-3.38/ns-3.38$
```



Assignment-Observation



Spoken Tutorial Workshops

The Spoken Tutorial Project Team

- ▶ Conducts workshops using spoken tutorials
- ▶ Gives certificates to those who pass an online test
- ▶ For more details, please write to contact@spoken-tutorial.org



Answers for THIS spoken tutorial

- ▶ Questions in THIS Spoken Tutorial
- ▶ Visit <https://forums.spoken-tutorial.org>
- ▶ Choose the minute and second where you have the question
- ▶ Explain your question briefly
- ▶ The Spoken Tutorial project will ensure an answer
- ▶ You will have to register to ask questions



- ▶ For any general or technical questions on ns-3, visit the FOSSEE forum and post your question

<https://forums.fossee.in/>



Acknowledgement

- ▶ **The Spoken Tutorial project was established by Ministry of Education, Govt. of India**



Acknowledgement

- ▶ We thank Dr.Moyukh Laha from IIT Kharagpur for his domain support
- ▶ We would also like to thank Dr. R. Radha, Dr. X. Anita, and Dr. T. Subbulakshmi from VIT Chennai for their support



Thank you

- ▶ **This is Arun Santhosh, a FOSSEE Summer Fellow 2023, IIT Bombay signing off**

